

# **What Happens Next**

Remedial Investigation & Feasibility Study

- Atlantic Richfield Company will submit a draft Remedial Investigation Report summarizing the nature and extent of contamination, including Ecological and Human Health Risk Assessments.
- Based on the RI Report, a Feasibility Study will be developed to evaluate options for remaining contamination.

## Early Final Remedial Action: Year-Round Capture of Five Primary Sources of Acid Mine Drainage

- EPA will develop and release for public comment a Proposed Plan for the EFRA.
- After responding to public comments, EPA will issue a Record of Decision.
- EPA and the Responsible Parties will negotiate a Consent Decree for Remedial Design and Remedial Action.

## **For More Information**

#### Washoe Tribe of Nevada & California Role:

EPA's Policy on Consultation and Coordination with Indian Tribes discusses EPA's responsibility to consult with tribes and consider their interests when taking action that may affect them or their resources. EPA works with the Washoe Tribe and provides funding through a cooperative agreement to facilitate meaningful involvement.

### Talk with one of the EPA or Washoe Tribe of Nevada & California representatives:

### Freyja Knapp

U.S. EPA Region 9 Remedial Project Manager (415) 972-3025

knapp.freyja@epa.gov

### **James Gatzke**

Washoe Tribe of Nevada & California Environmental Program Coordinator (775) 265-8680 X 11010 james.gatzke@washoetribe.us

Visit the Information Repository located at:

## **EPA Superfund Records Center**

95 Hawthorne St., 4th Floor San Francisco, CA 94105 (415) 536-2000

Be included on the Leviathan Mine Superfund site mailing list by contacting Freyja Knapp.

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#### Websites:

Leviathan Mine Superfund Site – <a href="http://www.epa.gov/superfund/leviathanmine">http://www.epa.gov/superfund/leviathanmine</a>



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# **Leviathan Mine Superfund Site**

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • Oct 2022

# **History and Timeline**

# **Background**

Leviathan Mine is an abandoned open-pit sulfur mine. The mine is located approximately 25 miles southeast of Lake Tahoe high on the eastern slope of the Sierra Nevada mountain range, in a remote portion of northeastern Alpine County, CA surrounded by national forest and private land. The acid mine drainage (AMD) from Leviathan Mine has historically contaminated a nine-mile stretch of the Leviathan-Bryant Creek watershed, impacting Leviathan, Aspen, and Bryant Creeks, as well as the East Fork Carson River. In 2000, the U.S. Environmental Protection Agency (EPA) added the mine and the impacted areas (the "Superfund site") to the National Priorities List (NPL). The NPL is the list of the most complex, uncontrolled hazardous waste sites throughout the United States that threaten public health and the environment.

The historical activities from the Leviathan Mine have created AMD, impacting the surrounding environment. Sulfuric acid is created when water (rainwater, snowmelt and subsurface water) interacts with rocks containing sulfur-bearing minerals. The resulting highly acidic water moves into the surrounding environment, such as the groundwater, surface water and soil, and may have harmful effects on humans, animals and plants.

Although a long-term cleanup plan has not been developed, early cleanup activities are being conducted to reduce the discharge of untreated AMD. In the mid-1980s, the Pollution Abatement Project began which included re-grading the site, building evaporation ponds, and channeling the creek. Interim treatment systems have greatly improved the water quality of the Leviathan-Bryant Creek watershed.

### **Acid Mine Drainage (AMD)**

When highly acidic water that is rich in metals moves (or drains) out of a mined area into the environment



Figure 1: Leviathan Mine Superfund Site Location

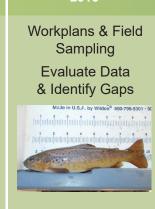
# **Timeline for the Leviathan Mine Superfund Site**

Benthic macroinvertebrate **USGS** Groundwater Open pit sulfur sampling begins ('95) Supported by the monitoring began ('82) mining by the Washoe Tribe, EPA EPA and ARC Pond water Anaconda Company Atlantic Richfield RWQCB acquired the added the site to the treatment field studies Fish kills reported Underground Underground Company purchased site to address water National Priorities Surface water monitoring mining for sulfur mining for copper in 1950's Anaconda Inactive quality ('84) List (NPL) begins ('97-'98) 1935-1941 1952-1962 1982-1984 1985 1995-1998 1999 2000 1977 Pollution Aspen Seep Pond water Bioreactor Abatement treatment system **Project** ('96 to present) ('99 to present) **Early Interim** High-density Results of revegetation efforts, sludge treatment **Actions (Summary)** Lime treatment system July 2015 ('09 to present) system 2009-2010 2014 2015

RI/FS Ordered from EPA to ARC ('08) **Groundwater Wells** (60%)



2016



Evaluate Data & Identify Gaps
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Workplans & Field

2017	2018 - 2022
Site Characterization Report	Evaluate Data  Draft Focused Feasibility Study: Year-Round AMD Capture and Treatment EFRA

2023	2024
Final EFRA Focused Feasibility Study**	
Draft RI/FS Report**	

**RI/FS Schedule** 

Treatment System Achievements 1999-2021

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	CA RWQCB	ARC	TOTAL	
Water Treated	166,053,904	210,645,233	376,699,137	Gallons
Aluminum Removed	570,900	79,046	649,946	Pounds
Arsenic Removed	8,751	438	9,189	Pounds
Iron Removed	891,872	343,352	1,235,224	Pounds
Nickel Removed	9,297	1,783	11,080	Pounds

# **Overall Schedule**



Proposed EFRA Plan\*\*

EFRA Public Meeting\*\*

**EFRA Record of** Decision\*\*

### Acronyms

RWQCB - California Regional Water Quality Control Board

USGS - United States Geological Survey

ARC - Atlantic Richfield Company

EPA – United States Environmental Protection Agency

EFRA – Early Final Remedial Actions

RI/FS - Remedial Investigation/Feasibility Study

\*\*Proposed Schedule